The transmission mechanism of monetary policy in Peru

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Overview

The far-reaching structural transformation that began in August 1990 has significantly changed the way in which monetary policy affects the Peruvian economy. The changes started with a stabilisation and reform programme which aimed at halting hyperinflation in excess of 7,000% in 1990 and bringing the economy back to a path of sustainable growth. As a result, inflation was brought down to single-digit level in 1997 (9.5% in the 12 months ending in June).

As in other recent reform programmes, the Peruvian liberalisation covered many markets simultaneously and was undertaken together with stabilisation. Between August 1990 and December 1991, all exchange controls were eliminated, full convertibility was restored, the current and capital accounts were liberalised and a floating exchange rate regime was established. At the same time interest rates were freed and reserve requirements were gradually lowered.

Financial reform was consolidated during 1991–92, with the approval of a new legal framework that allowed market forces to work freely. This legal framework included a new Constitution and special legislation for the central bank, financial institutions, the stock market and the private pension system.

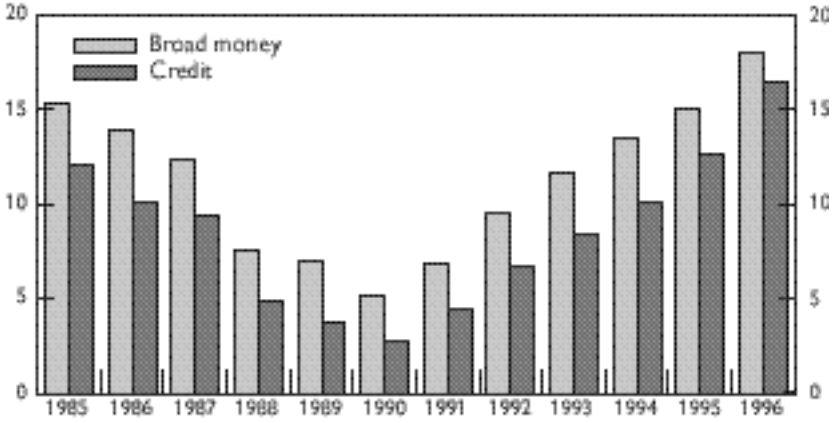
In this new legal environment, Peru adopted the principles of universal banking, competition in the financial system was fostered with the non-discriminatory treatment of foreign investment, public banks were privatised, prudential regulations consistent with the Basle standards were introduced, a deposit insurance scheme with partial coverage was implemented, and bank supervision was improved significantly. At the same time the stock markets were privatised, mutual funds started operations and employees were allowed to choose between contributing to private pension funds based on individual accounts and contributing to the old pay-as-you-go public pension system.

Reforms and successful stabilisation have helped to restore confidence in the Peruvian financial system and to promote the development of the domestic capital market. Financial intermediation has rebounded to its pre-hyperinflation levels. The ratio of broad money to GDP increased from 5% in 1990 to 18% in 1996. In addition, credit to the private sector rose from 3% of GDP to 16.5% of GDP over the same period (see Graph 1). Private bond issues in the domestic capital market started in 1993 and now amount to almost 2% of GDP.

Graph 1

Broad money and credit to the private sector

As a percentage of GDP



1. Reform of monetary policy and the role of the central bank

The reform of monetary policy and the central bank are among the main elements of the Peruvian economic programme. Under this reform the role of the central bank was redefined to allow it to concentrate on achieving price stability. For this reason, the new Charter of the Banco Central de Reserva del Peru states that *price stability is the sole objective of the Bank*. In accordance with this objective, monetary policy aims at achieving low international rates of inflation in the medium term. The Bank's further functions are: to regulate the money supply, to administer

the international reserves, to issue banknotes and coins, and to report periodically on the economy's financial situation.

The 1993 Peruvian Constitution (and the new central bank Charter) establishes two fundamental principles of monetary policy:

(i) The Banco Central de Reserva del Peru is autonomous, within its own Organic Law; and

(ii) the Bank's purpose is to preserve monetary stability.

The Bank's autonomy is a necessary condition for the technical management of its activities, free from any political pressures to finance, for instance, public spending by printing money. By establishing in the Constitution that monetary stability is the only purpose of the Bank, it is acknowledged that its contribution to growth is to eliminate inflation. Recent experience in Peru has shown that it is impossible for businesses to flourish or for investment to grow in the presence of high inflation.

To safeguard the Bank's autonomy, the Constitution provides that members of its Board of Directors may be impeached by Congress only for serious dereliction of their duties. Among the grounds for impeachment, the Bank's Organic Law tables the following:

- financing the public sector (except indirectly, through the purchase of bonds in the secondary market, up to 5% of the monetary base at the end of the previous year);
- financing any state development bank;
- granting guarantees;
- granting credit to any particular sector of the economy;
- establishing multiple exchange rate systems.

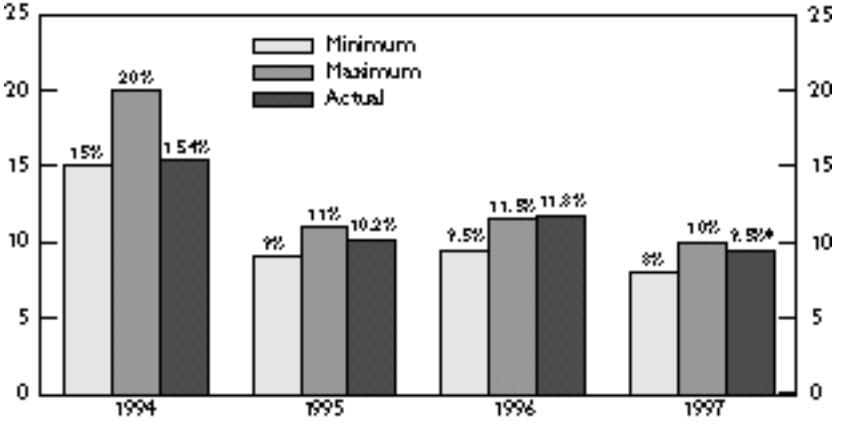
The previous law made the Bank responsible for achieving three objectives which could be mutually incompatible: price stability, promoting credit and exchange rate conditions consistent with the orderly development of the economy, and fostering high growth in production and employment.

Under its new legal framework, the Bank is establishing a record of meeting its inflation targets. At the beginning of each year the Bank announces a target range for annual inflation. In 1994 and 1995 Peru achieved inflation rates within its target range, and in 1996 inflation was only slightly above this range (see Graph 2).

Graph 2

Annual inflation targets and actual inflation

In percentages



* Twelve months to June.

2. Monetary programming

The Board of Directors of the Bank approves a monetary programme which includes liquidity and credit growth rates compatible with a consistent macro-economic scenario and with the inflation objective set. In formulating the monetary programme the Bank takes into account aggregate supply and demand trends. On the supply side, feasible growth rates by sector are factored in, identifying possible constraints or bottlenecks. On the demand side, consumption and investment growth in the public and private sectors are considered.

The aim of monetary policy is to gradually achieve low international levels of inflation (once a single-digit level has been reached, the speed of disinflation should be lower because of higher output costs). The Bank sets intermediate targets for base money growth consistent with its annual inflation targets. Base money targets are based on money demand forecasts. However, these targets are not made public, as changes in money demand might lead to their revision. Such changes could arise, for instance, as a result of financial innovation or improvements in the payments system. By selecting base money as an intermediate target, the

Bank accepts that exchange rates and interest rates should be freely determined by supply and demand.

In order to determine base money, the levels of liquidity required by economic agents need to be estimated. This is accomplished using the money equation (expressed in percentage changes):

$$\hat{M} = \hat{P} + \hat{Q} - \hat{V}$$

For programming purposes, the growth of liquidity (M) is obtained by determining the targeted inflation rate (P) and the sustainable rate of output growth (Q) and applying the estimated velocity of circulation of money (V). The growth of liquidity must have a direct relationship with the increase in prices and output and an inverse relationship with the change in velocity of circulation of money. Once liquidity has been estimated, base money (H) is obtained by dividing the former by the bank multiplier (m), which in turn is calculated from the estimated preference ratio for currency (c) and the bank reserve coefficient (e):

$$m = M/H = 1/[c + (1 - c)e]$$

At the beginning of the stabilisation programme a monetary aggregate was selected as an intermediate target. It was thought that inflation expectations would respond more to such a variable, as agents had observed a striking relationship between the explosive growth of base money and hyperinflation. Fixing the exchange rate was ruled out early on because of a lack of international reserves, negative experience with failed stabilisation attempts and difficulties in choosing an appropriate exchange rate. Moreover, flexible exchange rates were viewed as more desirable under capital mobility and potentially volatile capital flows. On the other hand, interest rate targeting was also ruled out, as it was difficult to determine an appropriate level for the nominal interest rate in an environment of disinflation (reflecting the difficulty of measuring inflation expectations) and as financial markets were not very deep.

The chosen intermediate target was base money, rather than a broader aggregate, because it could be more easily controlled by the Bank and because it had a close relationship with the policy objective (inflation).

Monetary policy indicators

Targets for monetary aggregates are revised during the year if new information on a set of selected indicators suggests that money demand

differs from the original forecast. The Bank examines the monetary stance by reference, inter alia, to the following indicators:

- the interbank interest rate;
- the exchange rate;
- projected inflation;
- the fiscal stance;
- aggregate demand;
- credit to the private sector.

Instruments of monetary policy

In order to achieve its inflation target, the Bank has gradually replaced its instruments of direct monetary control with market-based instruments. Direct credit allocation by the Bank was discontinued in 1991 and discount window borrowing has been significantly reduced and is only granted for very short periods (usually one business day). Reserve requirements for domestic currency liabilities have been reduced from 45% in 1990 to 9% in 1993 and to 7% in 1997.

Currently, monetary policy is based on two main instruments:

(a) intervention in the foreign exchange market through sales and purchases of foreign exchange to/from financial institutions. Under the floating exchange rate system, the Bank's intervention reduces abrupt and transitory changes in the exchange rate. Furthermore, intervention induces remonetisation and a gradual reversal of the dollarisation process and, at the same time, the Bank accumulates international reserves;

(b) intervention in the money market through open market operations conducted using central bank certificates of deposit which are auctioned to financial institutions and institutional investors. The Bank announces the amount to be issued, and the interest rate is freely determined through the auction process. Thus, the Bank can sterilise the excess reserves of the financial institutions, reducing the volume of base money.

Another instrument used by the Bank is the provision of short-term monetary regulation loans (rediscounts). These loans are used to offset temporary liquidity shortages of financial institutions, which arise from seasonal fluctuations in monetary aggregates and public finance. However,

if a bank uses this credit for 90 days in a period of 360 days, it is placed under surveillance by the institution in charge of banking supervision. The interest rate charged is higher than the yield on central bank CDs, so as to discourage banks from taking funds from the Bank instead of seeking interbank credits. The Bank modifies its discount rate to signal changes in the stance of monetary policy or in expected inflation.

Reserve requirements on foreign currency deposits and the interest rate paid on these reserves are used as supplementary instruments in order to control the expansion of monetary aggregates denominated in foreign currency. Currently, a 45% marginal reserve requirement applies to all foreign currency deposits. Required reserves are remunerated at LIBOR minus 1⅜%. Reserves are computed on the basis of monthly averages. Vault cash and demand deposits at the central bank count towards these reserves.

For the daily conduct of monetary policy, there is a Money and Foreign Exchange Committee that meets every morning to decide on intervention on the basis of the most recent information in the markets. The Committee decides:

- the amount of dollars to be purchased in the foreign exchange market;
- whether to auction central bank CDs and the amount to be auctioned;
- the discount rate.

3. Capital inflows

Large capital inflows constitute a challenge for monetary policy. They create pressure for an appreciation of the exchange rate and facilitate rapid credit expansion as external financing is readily available to domestic banks. Although over 70% of the inflows into Peru are long-term, the remaining 30% or so could be considered temporary. In view of the risks that the potential volatility of these capital flows poses to macroeconomic stability and the health of the financial system, the Bank has chosen an active approach to dealing with them.

To reduce the impact that capital flows have on the exchange rate and on aggregate demand the Bank maintains the 45% marginal reserve requirement on foreign currency deposits. This also acts as a buffer stock against potential outflows and encourages holdings of domestic currency. Furthermore, the Bank sterilises its net purchases of dollars in order to

keep base money growth under control. Sterilisation is carried out through sales of central bank CDs or through public sector deposits at the central bank.

4. Coordination with fiscal policy

Coordination between fiscal and monetary policies has been a key element of the success of Peruvian stabilisation. In the early stages of stabilisation, strict fiscal discipline made it possible to regain control of monetary policy. In addition, since 1994 public sector deposits and purchases of foreign exchange from the central bank have given the monetary authority room to intervene in the foreign exchange market and prevent a larger appreciation of the new sol.

The coordination of fiscal and monetary policies takes place at two levels:

- at the programming level: the macroeconomic assumptions for the fiscal budget, including the annual inflation targets, are set by the Ministry of Finance in coordination with the Bank;
- at the operational level: a Fiscal Committee meets each month to set government expenditure, foreign exchange purchases and deposits. The Bank participates in the meetings of this Committee.

5. The process of dollarisation

Prolonged high inflation turned Peru into a highly dollarised economy. While dollarisation has decreased somewhat as inflation fell, restoring confidence in the domestic currency after hyperinflation takes time. At the end of 1996, over two-thirds of deposits and credit to the private sector were denominated in dollars.

The Peruvian dollarisation process goes back to the 1970s when inflation rates started to rise steadily from 19% in 1972 to 74% in 1978. During this period it was prohibited to hold foreign currency, which led to a reduction in the ratio of broad money to GDP from 19.2% to 12.6% as residents acquired dollar deposits outside Peru. At the end of the decade, foreign currency deposits were allowed in the domestic financial system. When three-digit rates of inflation were reached during the first half of

the 1980s, a wide range of foreign assets started to be used as a store of value. The proportion of dollar deposits in the domestic financial system grew to 49% in 1984 (see Table 1). In 1985, this ratio declined to 30% as a result of the confiscation of foreign currency deposits, but this policy did not eliminate incentives to hold foreign currency. It instead resulted in a new outflow of capital via the acquisition of dollar deposits abroad. Thus, in 1987 the ratio of dollarisation shrank to 10%. However, if the dollar deposits abroad by Peruvian residents were included, the degree of dollarisation of assets held by Peruvians would amount to 39%.

In highly dollarised economies, the effectiveness of monetary policy in controlling inflation could be hampered. This, however, depends on the kind of dollarisation. If dollarisation reflects a process of asset substitution, rather than currency substitution, the monetary channel of transmission might still be operative. In the case of Peru, the current degree of dollarisation reflects mainly a process of asset substitution rather than currency substitution. In fact, local currency retains its role as

Table 1
Degree of dollarisation
In percentages

	Dollarisation ratio		Inflation rate
	(A)	(B)*	
1981	27	37	73
1982	35	49	73
1983	40	57	125
1984	49	65	112
1985	30	55	158
1986	11	36	63
1987	10	39	115
1988	32	70	1,722
1989	21	54	2,775
1990	47	76	7,650
1991	58	73	139
1992	63	75	57
1993	68	77	40
1994	63	71	15
1995	61	68	10
1996	63	69	12

* Considers deposits of Peruvians abroad.

a means of payment, while foreign currency mainly serves as a store of value (due to the past history of high and persistent inflation). In this context, the effectiveness of monetary policy is not very much affected by dollarisation, since local currency remains the main monetary channel of transmission to aggregate demand.

The ratio of dollarisation including deposits abroad (indicative of asset substitution) shows that from 1990 to 1996 the degree of dollarisation fell together with inflation. Incentives to hold foreign currency remain, but as long as monetary policy can keep inflation low, the public's confidence in the local currency, not only as a means of payment but also as a store of value, should be gradually restored.

A breakdown of deposits in the Peruvian banking system shows that domestic currency deposits are mostly held in the form of current accounts and savings deposits, while foreign currency deposits are predominantly held as savings and time deposits (see Table 2). Furthermore, the withdrawal frequency (defined as the ratio of withdrawals to average balances outstanding) is more than twice as high in local currency as in foreign currency. Therefore, while there is a demand for foreign currency for some transactions, its main role is as a store of value.

Table 2
Composition of bank deposits

	Local currency			Foreign currency		
	Current accounts	Savings deposits	Time deposits	Current accounts	Savings deposits	Time deposits
1992 . . .	33	55	12	9	55	36
1993 . . .	41	44	15	13	43	45
1994 . . .	31	46	23	11	42	46
1995 . . .	30	44	26	12	40	48
1996 . . .	28	40	33	13	35	52

6. The transmission mechanism of monetary policy

The Peruvian economy has undergone radical change during the current decade as a result of stabilisation and reform. The new, liberalised financial environment, the ongoing process of financial innovation and the

recent development of open market operations by the central bank have changed and continue to change the ways in which monetary policy is transmitted. It is therefore still too early to draw definitive conclusions regarding the transmission mechanism of monetary policy in Peru. What follows is a preliminary overview of this unsettled issue.

In this liberalised financial system, with its high degree of dollarisation, monetary policy has two sets of instruments. The first, and the most important, is related to indirect monetary control of domestic currency aggregates, and the second is the reserve requirement on foreign currency deposits. As in other dollarised open economies, monetary policy operates mainly through three channels: money, credit and the exchange rate.

Research conducted at the central bank shows that the money channel is the most important channel of transmission. Since 1994, with the development of open market operations, the interest rate on central bank CDs has become a benchmark in the domestic financial markets. At the same time, the influence of broader monetary aggregates on aggregate demand and inflation is still sufficiently large to use them as intermediate targets.

Usually the Bank modifies the stance of monetary policy through changes in indirect instruments rather than through changes in reserve requirements on foreign currency deposits.

(i) The money channel

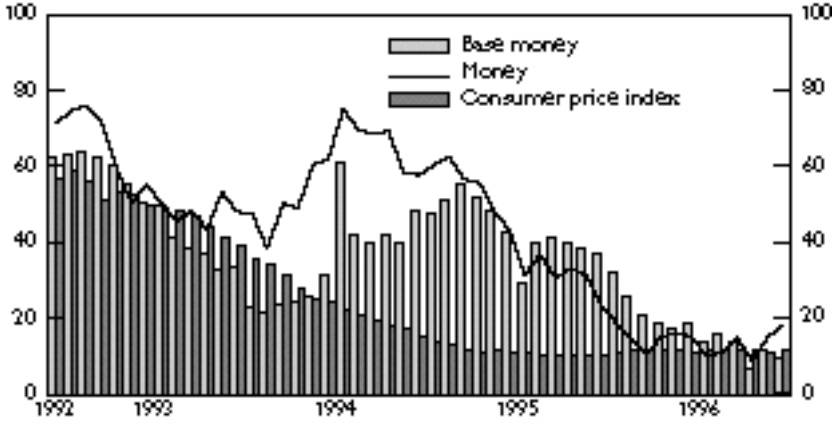
By controlling base money growth, the Bank can influence interest rates, which in turn affect aggregate demand and inflation (Graph 3). Through the interest rates on its instruments (the CD rate and the rediscount rate), the Bank signals to the market its stance of monetary policy, influencing expectations regarding the term structure of interest rates. Thus, for instance, a tightening of monetary policy increases the central bank CD rate, and leads to an increase of interbank and prime interest rates.

In addition, movements in base money induce similar movements in broader monetary aggregates, first in local currency and subsequently also in foreign currency. As a result, changes in the stance of monetary policy influence aggregate demand and inflation. Monetary policy implementation mainly focuses on bank reserves by influencing liquidity conditions in the banking sector. Therefore, interbank interest rates tend to reflect a

Graph 3

Base money, money and prices, 1992–96

Twelve-month growth rates, in percentages



shortage or a surplus of liquidity, depending on the direction of monetary policy.

For instance, during 1995 the Bank tightened monetary policy in order to prevent inflation pressures and to maintain a sustainable external position in a context of less fiscal discipline than in previous years. Thus, the central bank CD rate rose from 15 to 19% and the discount rate from 16 to 21%. As a consequence, the growth of liquidity in local currency slowed from a rate of 61% in April to 35% in September. Over the same period, the growth of liquidity in foreign currency decreased from 36 to 19% (Graph 4).

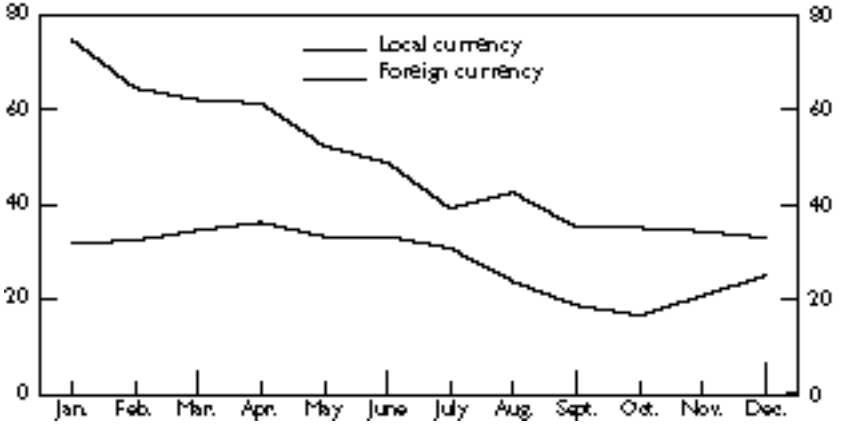
(ii) The credit channel

Monetary policy is transmitted via this channel mainly through that part of the stock of money denominated in foreign currency. There is only weak evidence of the existence of this channel for local currency as indirect monetary control affects the availability of credit. On the other hand, the 45% marginal reserve requirement on foreign currency deposits limits credit growth for any given increase in deposits. Changes in this marginal reserve requirement can be used to further affect credit availability.

Graph 4

Liquidity in local and foreign currency, 1995

Twelve-month growth rates, in percentages



The effectiveness of this channel is influenced by the degree of capital mobility, the level of financial intermediation and the development of the domestic capital market. For instance, in the past few years, higher capital mobility and the development of the domestic capital market have increased the availability of substitutes for bank credit, as some firms have access to financing through issues of debt or equity in the domestic and external capital markets. This tends to reduce the effectiveness of the credit channel. On the other hand, with the restoration of confidence in the banking system, higher bank intermediation tends to improve the effectiveness of this channel, as it replaces informal financing mechanisms.

(iii) The exchange rate channel

As long as domestic and foreign currency assets are imperfect substitutes, central bank intervention in the foreign exchange market will have an impact on the exchange rate. Thus, sterilised purchases of foreign exchange can produce a nominal depreciation of the domestic currency, and temporarily also a real one. However, as large-scale sterilised intervention induces higher interest rates, its impact on the exchange rate cannot be long-lasting. Rather, in the context of large capital inflows, a

strong fiscal position is essential to reduce real appreciation of the exchange rate.

The goal of the Bank's intervention in the foreign exchange market is to reduce exchange rate variability. In order to keep to the intermediate target for base money growth, this intervention is sterilised through net sales of central bank CDs. Prudent fiscal policy contributes to this sterilisation and helps monetary policy maintain control of base money.

In 1994, for instance, the Bank bought US$ 1,053 million (NS 2,288 million) and base money increased by only NS 869 million. The difference was sterilised mainly through public sector operations (NS 1,048 million), which include sales of dollars to the Treasury (for external payment purposes) and an increase in deposits at the central bank. In addition, the Bank sold CDs for NS 338 million (see Table 3).

Table 3

Sources of base money

Changes in millions of new soles

	1994	1995	1996	1997*
Base money	869	986	338	325
Net purchase of US$ from the financial system	2,288	1,462	3,034	2,685
in millions of US$	*1,053*	*653*	*1,240*	*1,014*
Public sector	−1,048	− 754	−3,332	−2,416
Net sales of US$	− 978	− 720	−2,904	−1,703
in millions of US$	*− 447*	*− 314*	*−1,188*	*− 643*
Deposits at the central bank	− 70	− 34	− 428	− 713
Central bank CDs	− 338	− 91	359	− 99
Credit to financial system	− 6	4	103	41
Other	− 27	365	174	114

* January–July.

By contrast, in 1995 the Bank's purchases of foreign exchange amounted to only US$ 653 million as a less tight fiscal policy did not permit further sterilisation. The amount of sterilisation through public sector operations decreased from NS 1,048 million in 1994 to NS 754 million in 1995.

In 1996, a tighter fiscal policy resulted in higher sales of foreign currency to the public sector and higher public sector deposits at the central bank, offsetting intervention in the foreign exchange market.